FORM 173

Treatment of Partial Optic and Retinal Atrophy by Electricity and Massage.

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Reprinted from Ophthalmology, January, 1907.

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TREATMENT OF PARTIAL OPTIC AND RETINAL ATROPHY BY ELECTRICITY AND MASSAGE.*

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The treatment of ocular diseases by means of electricity and massage has been sadly neglected by the regular practitioner and greatly abused by the charlatan. A warning must be given as to the indiscriminate use of massage of the eye. It has been in the hands of quacks and osteopaths and much damage has been done thereby (case cited of Kansas City man with high myopia whose eye had detachment of the retina from quack osteopath). Electricity is only a placebo in the hands of empirics; properly used it can be of incalculable benefit in many cases.

The literature on this subject is, indeed, limited. W. Franklin Coleman's able article, "Some Personal Experiences in the Use of Electricity in Ophthalmic Practice," read at the last meeting of the American Medical Association, LeMond on "The Value of Faradism in Chorioiditis," and Starkey's "The Use of Galvanism in Pterygium" constitute about all the American literature we have to-day. Coleman reports fourteen cases of optic nerve atrophy treated by electricity, a summary of which is herewith given: "Fourteen patients, 23 eyes. In 5 eyes in which vision = light, 40 per cent. were improved. One to seeing hand movements and one to 20/lxx. In 18 eyes in which vision = form, 64 per cent. were improved; four, 60 per cent. to 125 per cent.; two, 300 per cent.; three, 500 per cent.; one, 1,500 per cent.; two from seeing fingers to reading. In six there was no improvement."

This splendid showing obtained by Coleman must convince the most skeptical that electricity has some virtues. The physiological action of electricity is wrapped in more or less obscurity; it very much resembles the medicines we classify as alteratives. In the migration of ions that takes place, the cells are stimulated to increased energy and regeneration

*Read before the American Academy of Opthalmology and Oto-Laryngology, September, 1906.

occurs. Leduc, of Nantes, has demonstrated the migration of ions through the tissues, and is of the opinion that the effects of electricity are due to the redistribution of the ions. E. G. Morton states that there seems to be no doubt that some rearrangement of molecules does take place in the tissues, and the compounds thus formed, as well as the electrolytic process itself, may be largely responsible for the effects of electrical treatment. Rockwell conducted experiments on the effects of electricity on the general nutrition and found that young dogs treated by general faradisation gained weight more quickly and became perceptibly larger than others of the same litter not so treated, but brought up under exactly similar conditions; others have found that if the muscles of, say, one leg be treated regularly for three or four weeks by electrical methods they become larger and heavier than of the opposite leg.

Electricity is not a specific, but that it possesses power to increase nutrition, to increase excretion of waste matter and cause local anesthesia can be readily demonstrated, for example: Examine the optic disc before an electrical treatment and then again after the treatment, and you will be surprised at the ruddy color of the nerve head, even to the point of obscuring the view of the same; or palpate an eye with a pus tension and note the marked reduction in tension after you massage the eye. The optic nerve is very sensitive to electrical currents. (For proper stimulation of the optic nerve, the indifferent electrode should be placed at the back of the neck and the active electrode on the closed eyeball.) It is important that we use only the weakest current possible, as too strong a current may cause damage to the retina.

The anode (or positive) pole has the following power: (1) anesthetic, (2) sedative, (3) hemostatic; it is less destructive than the cathode. The cathode (or negative) pole acts as (1) a stimulant, (2) quickens absorption, (3) increases moisture, (4) dilates blood vessels and lymphatics.

There are many electrical instruments on the market to-day. We have used for the past year the Victor Electric Company's wall plate No. 2, and found it very satisfactory. Our best results were obtained with the combined galvanic and faradic current and the high tension faradic. The former current is peculiar to the Victor wall plate. The negative pole is applied directly over the eye and the positive is applied to the nucha. Our patients would tolerate from five to ten milliamperes; the duration of the treatment varied from three to five minutes every day or every other day. Such a treatment could be continued for weeks or even months. Galvano-faradisation, so called by de Watteville, has the effect of giving increased volume to the faradic current, and the refreshing action of the galvanic also tends to counteract any bad effects of overstimulation by the faradic current. The contraindications to the use of electricity in ocular diseases are in cases of iritis, iridocyclitis, or any acute inflammation of the eye.

MASSAGE.

Massage has been employed in the treatment of diseases of the eye since the early 70s, but particularly during the past fifteen years. Donders formally introduced eye massage to ophthalmologists at the London Congress in 1872. Pagenstecher has done more than any one else to spread

the knowledge of this therapeutic agent; he published his first report 1878, and it aroused marked interest. In 1881 he compiled a report on the therapeutic value of massage in many diseases of the eye. Since that time Schenkl of Austria, Panas of France and Gradenigo of Italy and many others have added valuable contributions to this subject.

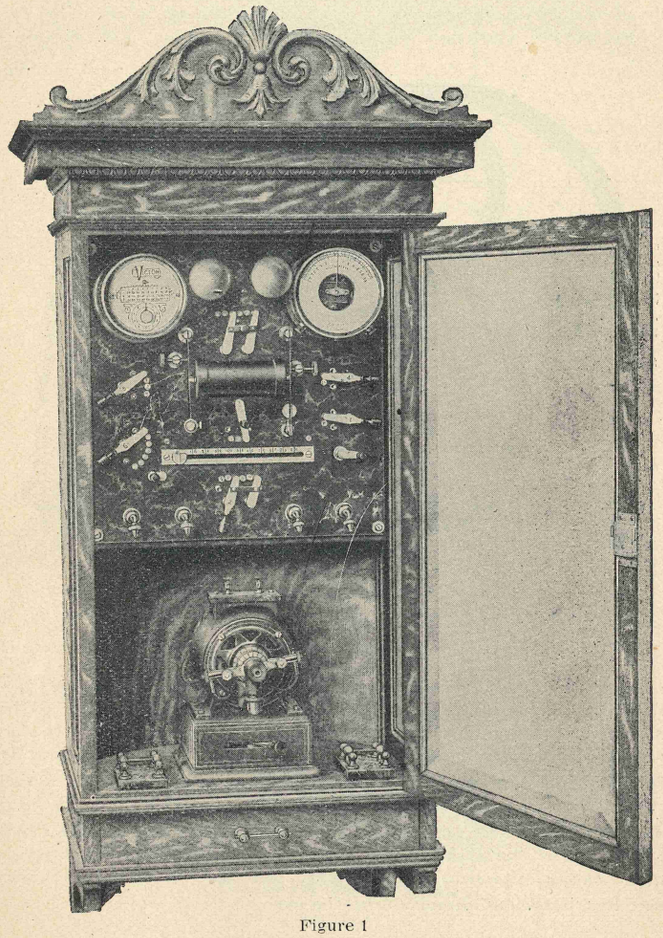

Figure 1

Würdemann has used deep digital massage with success in embolism of the central artery. Most of the authors employed digital massage, but we find that mechanical massage easily supplants and is, furthermore, an improvement over the digital method (except where very powerful action

is desired, as in recent embolism of the central artery, first, on account of cleanliness, as the rubber massage cup can be sterilized in a 5 per cent. carbolic solution; secondly, more uniform vibrations are obtained, and, thirdly, it is less distasteful to the patient. We have for the past year employed a rubber cupped massage handle, which receives its power from the Victor transformer No. 2 and the Pynchon pump attachment. The nipple of the pump should be at a point two-thirds distance to the right when we obtain vibration or alternate compression and suction. The

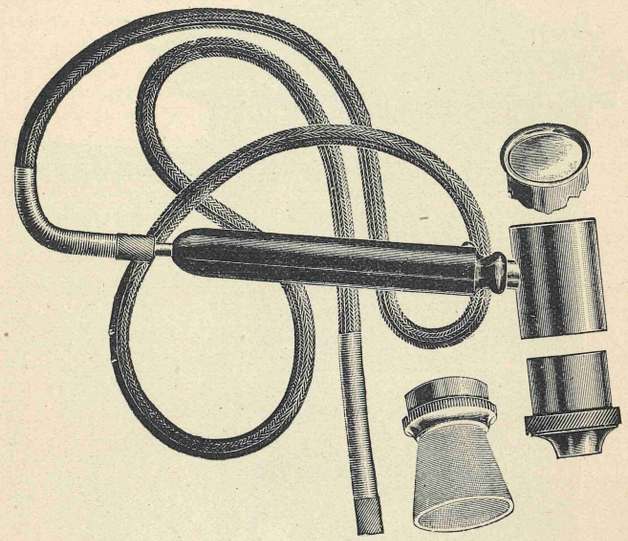

Figure 2

force or gentleness of the stroke is also regulated by thumb pressure over the hole in the handle. Great care should be exerted that neither the length nor the amount of the stroke causes any discomfort. In fact, the slower the stroke the better it is. We obtain the best results with 50 to 150 vibrations per minute. With the transformer and pump attachment the length of the stroke varies from 0 to 1¼ inches, and the length of the stroke desired can be selected by a gauge attached to the crank pin. The rapidity of the piston stroke varies from 30 to 600 vibrations per minute. Contraindications to massage are the same as in electricity, namely, any acute inflammation of the eye.

OTHER MECHANICAL MASSAGE INSTRUMENTS.

S. B. Muncaster, of Washington, D. C., in the *Ophthalmic Record.* 1902, published "A New Method of Treatment for Chronic Intraocular Diseases, Such as Atrophy of the Optic Nerve, Chorioidal Trouble," Etc.

He employed an "ophthalmo-oscillator"[1] and reported four cases treated during a period of two months, claiming results to be good. From

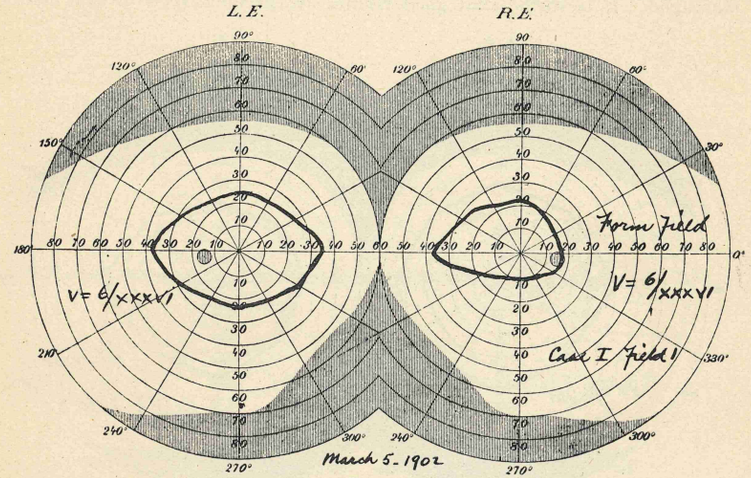

Figure 3

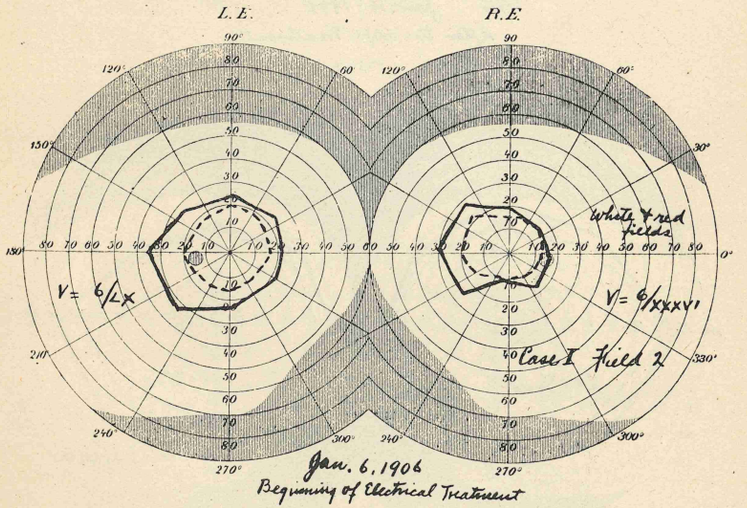

Figure 4

Germany comes the idea that small glass balls are to be mounted on suitable slender holders and the balls, which may be as much as one-half

1. This particular instrument was advertised widely to the laity through the printed puffs of an irregular who made extravagant and unsubstantial claims for "his" method and "his" instrument.

inch in diameter, are to be passed up between the ball of the eye and the lids to there be moved about and the local parts in this way thoroughly massaged. It is stated that good results are accomplished in this manner,

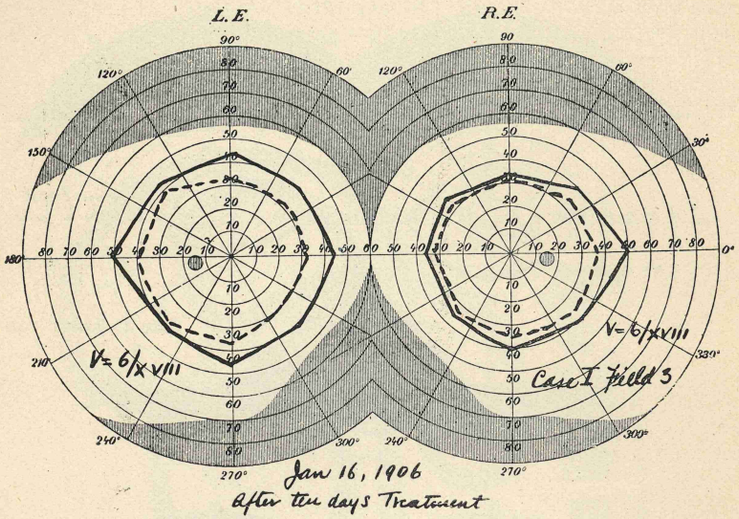

Figure 5

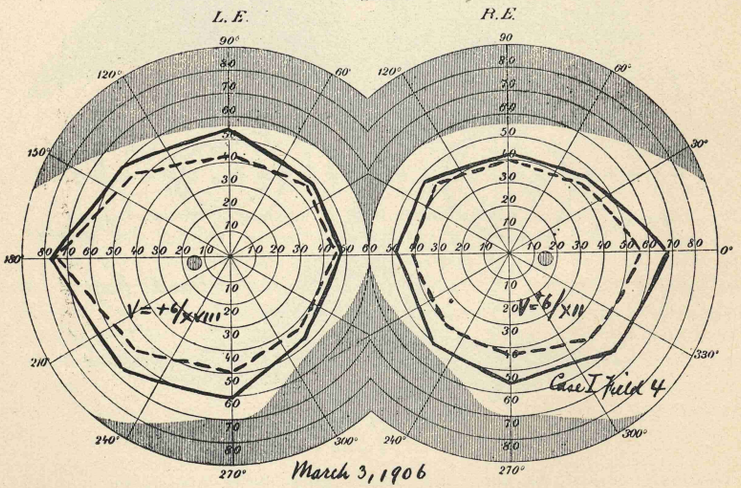

Figure 6

but we are skeptical of the value of this procedure. Biers has just published an article entitled "Hyperemia Treatment in Affections of the

Eye." This he accomplishes by tying an elastic band around the neck of a healthy person and allows it to remain there from three to eight hours daily. This procedure he recommends in young persons with visible

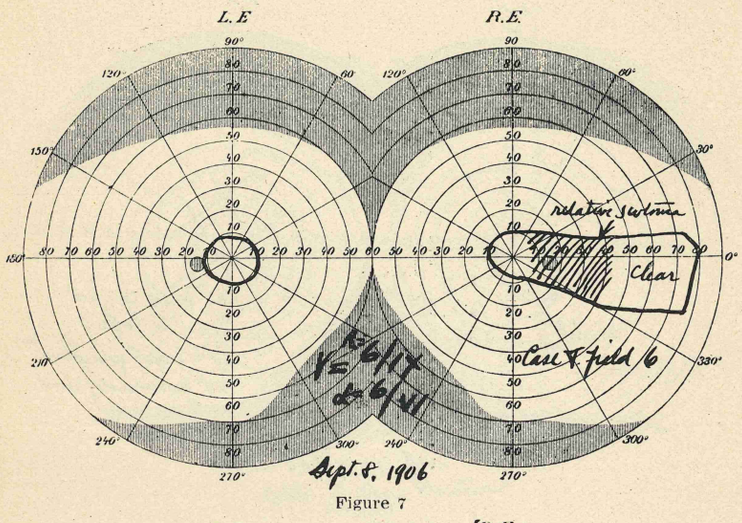

Figure 7

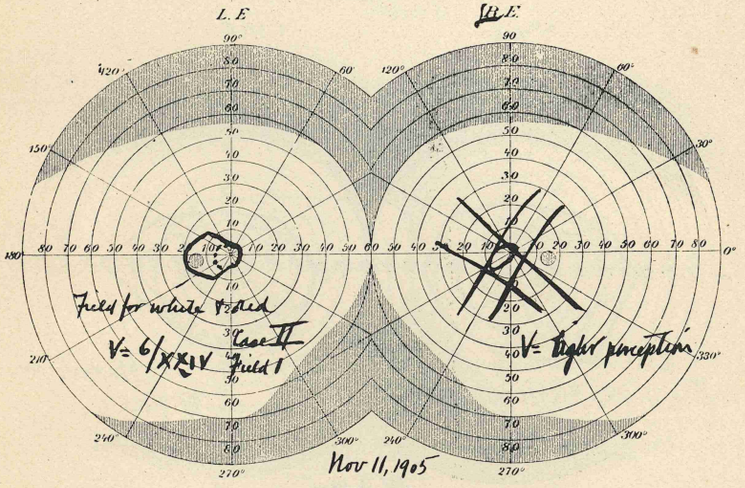

Figure 8

affection of the eye and no complication of the inner eye. Of this method we have no personal experience, but it seems to us to have little scientific basis. Bellarimow's ivory tipped masseur has been used by us

for corneal opacity, but is not useful in deeper affection. Indirect massage has also been employed with good results. We have used the Bilmayer

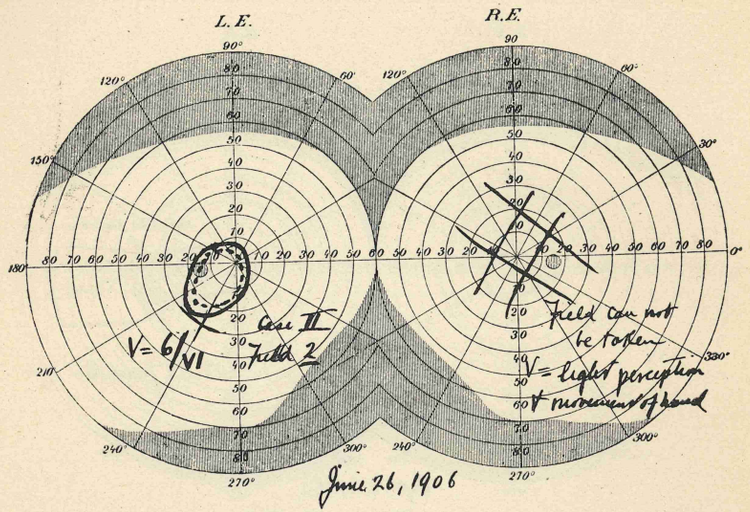

Figure 9

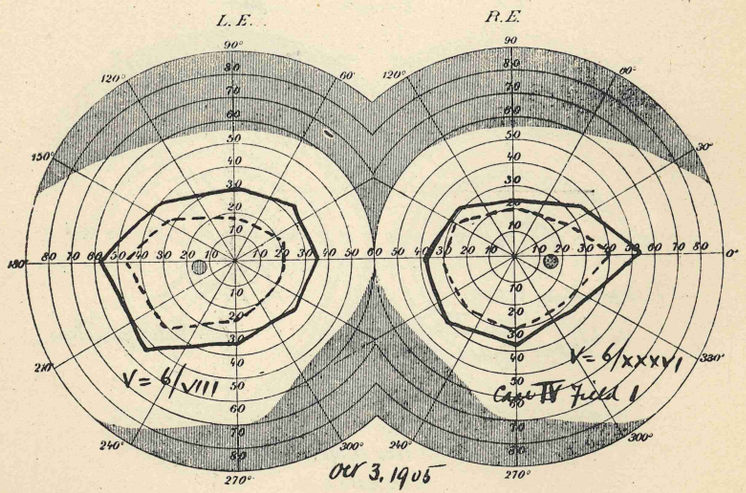

Figure 10

instrument, with two fingers of the operator placed on the patient's closed eyelid and the tip of the vibrator on the fingers.

Glaucoma.—Relieves tension, corneal opacities, chorioiditis, retinitis pigmentosa, phlyctenular keratitis, etc.

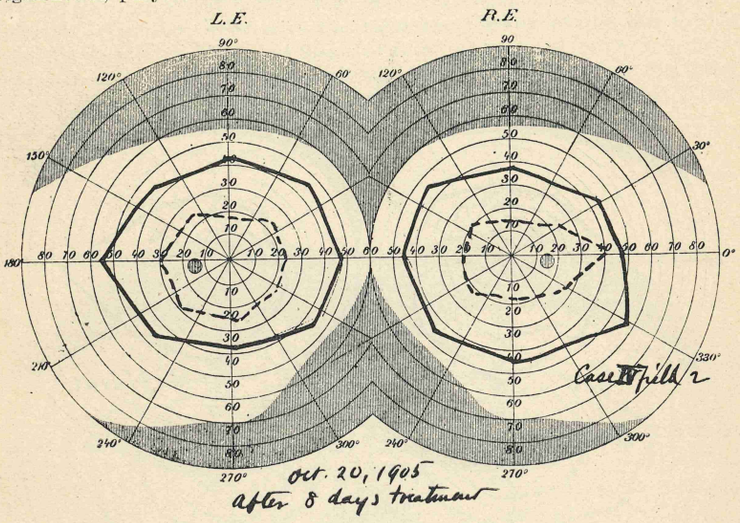

Figure 11

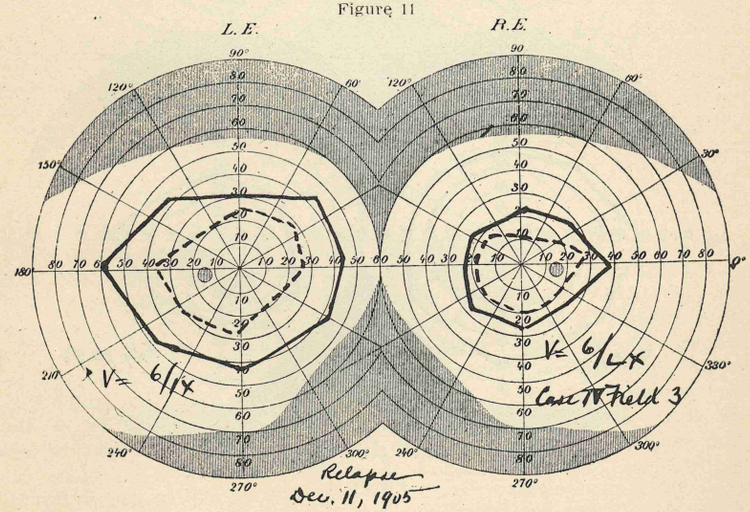

Figure 12

CASE 1.—Patient, Master R. R., age 10. Seen for the first time March 5, 1902. Examination showed hydrocephalus and rotary nystagmus. V. O.

D. = 6/xxxvi; O. S. = 6/xviii. Visual field very irregular and contracted; optic nerve whitish. Aug. 1, 1902, visual acuity as follows: O. D. = 6/xxxvi; O. S. = 6/xxiv. Jan. 5, 1906, returned and gave the

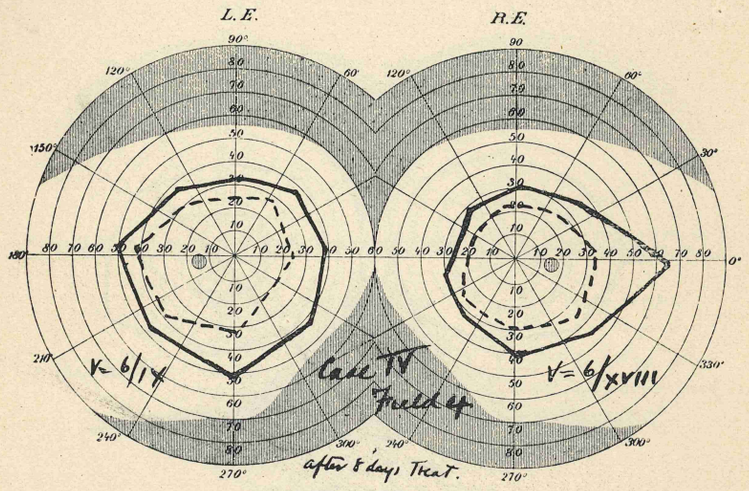

Figure 13

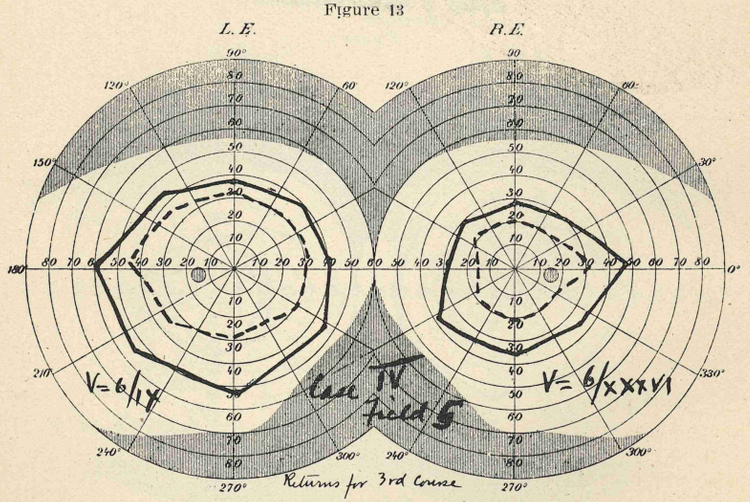

Figure 14

following history: Sustained a fall in June, 1905, causing an injury to the head and was unconscious for some hours after the injury. Examination showed V. of O. D. = 6/lx, of O. S. = 6/xxxvi. The visual field

greatly contracted and vertical nystagmus present. He was given a course of electrical treatments (the combined galvanic and faradic) for a period of ten days, the end of which the V. of O. D. was 6/xviii, vision of O. S. was 6/xviii. Returned home. Feb. 20, 1906, began the second course of electrical treatment. Vision of the right eye 6/xviii, of the left 6/xviii. After fourteen days' treatment vision of O. D. = +6/xviii, of O. S. = 6/xii. Returned home. July 5, 1906, returned for a week's electrical treatment. $O.^2$ = 6/xviii. On leaving the V. = $O.^2$ */xii, and the visual field almost normal.

Sept. 8, 1906, same conditions prevailed.

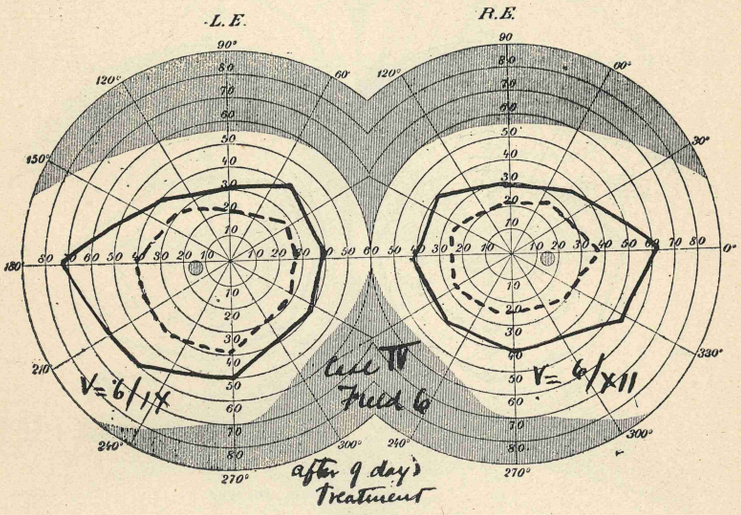

Figure 15

This case demonstrates not only the value of electricity, but, what is more, the lasting effects of this method of treatment.

Case 2.—Miss A. B., aged 19, seen for the first time Sept. 24, 1905. Following history was obtained: Congenital lues, sudden blindness one year ago at menstrual period; some of the sight returned, but on September 23d *total blindness* ensued after a suppression of menses; a saddle-shaped nose, and other evidences of lues is seen. Diagnosis: Optic atrophy both eyes; patient practically blind. On September 24th patient was sent to hospital for pilocarpin sweats and large doses of potassium iodid. She could not tolerate the sweats or moderate doses of iodid, so we decided to try electricity and massage. This treatment was given daily. On December 20th great improvement was shown and she walked around without stumbling and saw large objects. February 6th, 1906, now counts fingers when close to the eyes. June 15th, 1906, counts fingers at ten inches from face. August 24th, 1906, counts fingers with right eye at

1½ feet, and with the left at ten inches. November 1st, gradual improvement in sight. Visual field enlarged.

CASE 3.—Mrs. A. W., age 29, a congenital deaf mute. The diagnosis of this case as given by Drs. Brebeck and Hoffman, of Baden, Germany, is as follows: Physiological toxic substances in blood as result of pregnancy, causing a so-called kidney of pregnancy, occasioning, owing to some cerebral predisposition, an increased exudation of fluid in the ventricles of brain and resulting in a neuro-retinitis. Our diagnosis was optic nerve and retinal atrophy, both eyes. V. O. D. = movements of objects, V. O. S. =

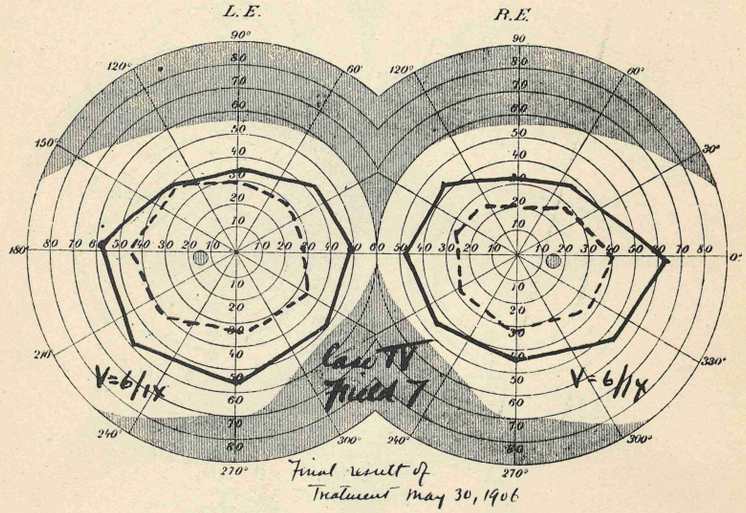

Figure 16

6/xii. Advised the use of electricity and massage. The treatment was started Nov. 11, 1905, and continued daily thereafter, with the following results: Jan. 22, 1906, V. O. D. = fingers at 1 m., V. O. S. = 6/ix. May 1, 1906, has had electricity and massage three times a week for the past month. She says she can see a good deal better; visual acuity and visual field shows improvement. V. O. D. = fingers at 1 m., V. O. S. = 6/ix. Has been collecting stamps and comes to the office alone. On June 26, 1906, returned from a month's sojourn in the country. Her condition now is about the same as when she left, except that the visual fields have increased slightly.

CASE 4.—Mr. W. McN., age 56, seen for the first time Oct. 2, 1905, with the following history: Acquired lues with the initial lesion appearing 16 months ago; complains of a gradual loss of sight for past ten days. Visual acuity as follows: O. D. = 6/xxxvi; O. S. = 6/ix. Sent to hospital for pilocarpin sweats administration of potassium iodid and mercury

inunctions; also electrical and massage treatments at the office. Returned home Oct. 20, much improved. Returned for treatment on Dec. 11, 1905,

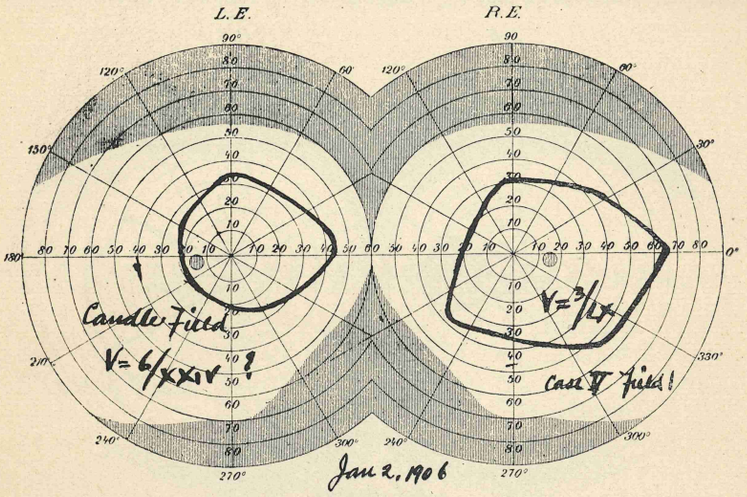

Figure 17

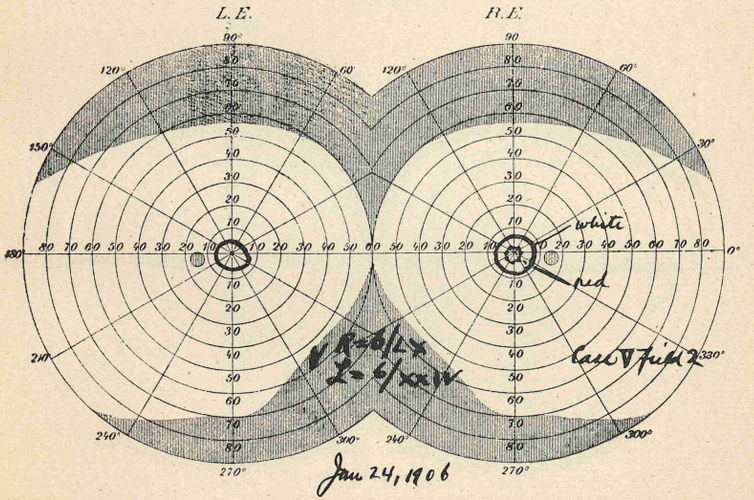

Figure 18

with a neuroretinitis of both eyes, but especially in the right eye. Visual acuity O. D. = 6/xxxvi, O. S., 6 /ix. Treatment was as follows: Potas-

sium iodid (teaspoonful of the saturated solution three times a day) and the electrical and massage treatment. Returned home Dec. 20, with improved visual fields and the visual acuity as follows: O. D. = 6/xviii,

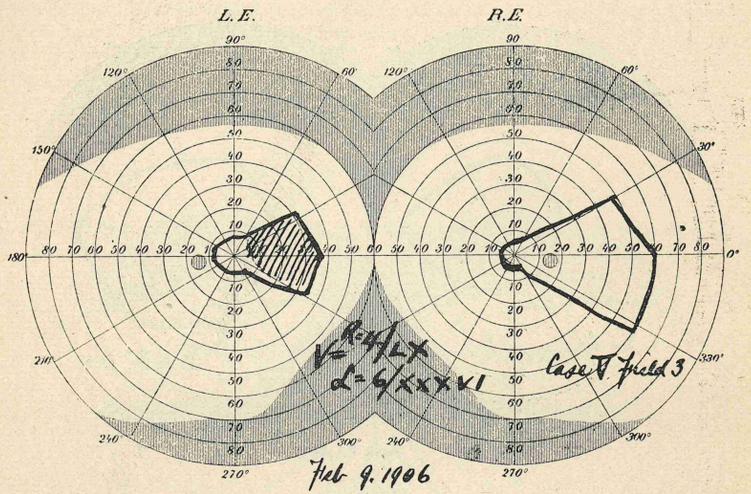

Figure 19

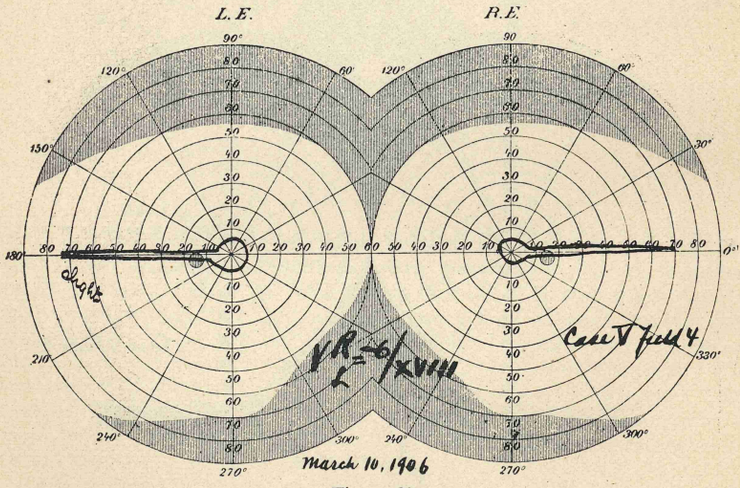

Figure 20

O. S. = 6/ix., Feb. 10, 1906, V. O. D. = 6/xxxvi, O. D. = 6/ix. After nine days' treatment with electricity and massage great improvement in

the visual field and visual acuity. V. O. D. = 6/xii, O. S. = 6/ix. May 30, 1906, returned for a week's treatment, at the end of which vision in both eyes was 6/ix, and the visual field very much improved.

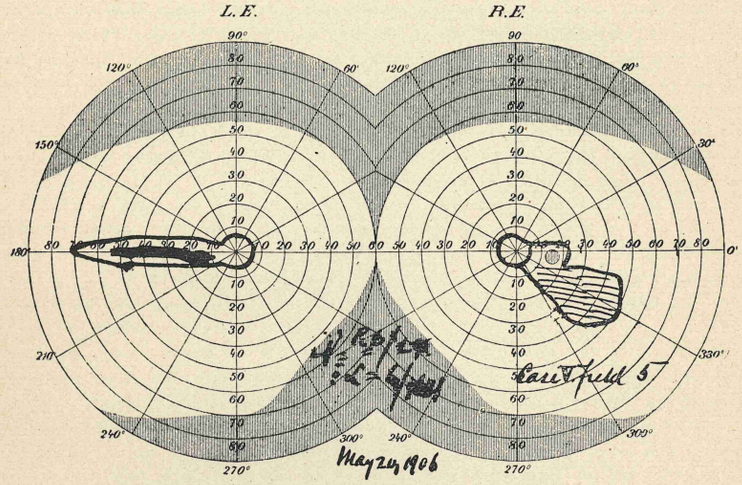

Figure 21

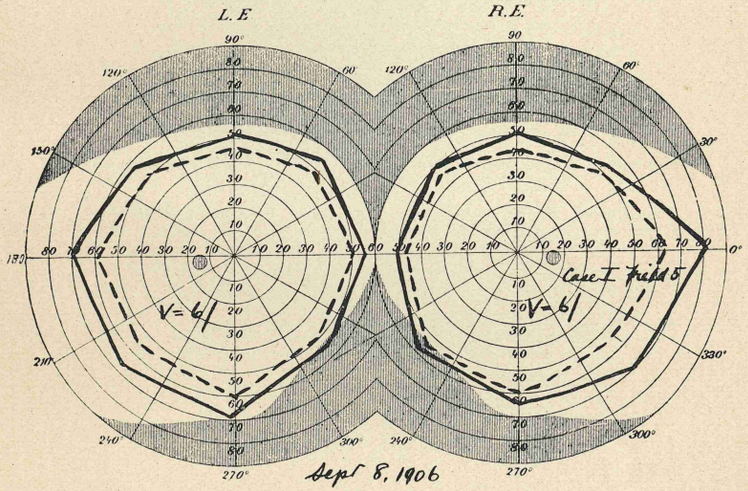

Figure 22

CASE 5.—Mr. T. W., age 68, was first seen April 20, 1905, and upon examination the right eye presented a choked disc. The left eye has a clear pupil, but irregularly dilated, with synechia. The right eye red

and inflamed with the pupil small and regular. V. O. D. = 3/lx, O. S. = 6/xxiv. Visual fields contracted. Choked disc O. D. = 3 D. Treatment prescribed was potassium iodid and mercury; sodium salicylate, atropin, and dionin for the iritis, June 5, 1905, V. O. D. = 4/lx, O. S. = xxxiv. Dec. 23, 1905, sent to hospital for pilocarpin sweats, large doses of potassium iodid, strychnia injections in temple, and was given electricity at the office, but no improvement was noted after this heroic treatment. Returned to us Jan. 2, 1906, and we could only obtain a moderate field by means of the candle test. He remained with us until the 24th of January, and received electric and massage treatments daily, with the following result: V. in the right was 6/lx, and in the left 6/xxxiv; visual field improved. Feb. 9, 1906, after one week's treatment, V. O. D. = 6/lx, O. S. 6/xviii. Great improvement in visual field. March 10, 1906, V. O. D. = 6/lx, O. S. = 6/xvii. April 7, 1906, V. O. D. = 6/lx, O. S. = 6/xviii, with both eyes, 6/xii. May 26, 1906, V. O. D. = 6/lx, O. D. = 6/xviii. June 25, 1906, V. O. D. = 6/lx, O. D. = 6/xii, with glasses and both eyes, V. = 6/vi. June 28, 1906, V. O. D. = 6/lx, O. S. = 6/xii. Aug. 16, 1906, after one week's treatment of electricity and massage a marked improvement in the visual fields noted. V. O. D. = 6/xxxvi, O. S. = 6/xii.

Electricity and massage are of value for stimulation of atrophic structures. The effect gained is permanent if long continued.

By the use of improved instruments the methods are facilitated and should be used by all regular practitioners.

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